

REMARKS

This Amendment is filed in response to the Office Action dated July 14, 2004, which has a shortened statutory period set to expire October 14, 2004. A two-month extension, extending the period of response until December 14, 2004, is requested in a petition filed herewith.

Rejections Under 35 U.S.C. 102

Claims 1, 2, 4-7, 14, 15, 17, 19, and 20 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Serial No. 09/359,155, submitted by David L. Thompson and published November 21, 2002 (hereinafter "Thompson"). Claims 3, 5-7, and 16 are cancelled, thereby rendering the rejection of those claims moot. Applicant respectfully traverses the rejection of Claims 1, 2, 4, 14, 15, and 17-20 in light of the above amendments and the following remarks.

Claim 1 is amended to incorporate the limitation of Claim 3 (Claim 3 is therefore cancelled). The Examiner notes that Claim 3 is "objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." Therefore, because the limitation of Claim 3 is incorporated into Claim 1, Claim 1 is allowable. Claims 2 and 4, which depend from Claim 1, are therefore allowable for at least the same reasons as Claim 1. Accordingly, Applicant respectfully requests reconsideration and allowance of Claims 1, 2, and 4.

Claim 14 is amended to incorporate the limitation of Claim 16 (Claim 16 is therefore cancelled). The Examiner notes that Claim 16 is "objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form

including all of the limitations of the base claim and any intervening claims." Therefore, because the limitation of Claim 16 is incorporated into Claim 14, Claim 14 is allowable. Claim 15, which depends from Claim 14, is therefore allowable for at least the same reasons as Claim 14. Accordingly, Applicant respectfully requests reconsideration and allowance of Claims 14 and 15.

Claim 17 recites:

[A] dynamically adjustable threshold voltage associated with the silicon based semiconductor transistor device, and which **threshold voltage is adjusted using a first bias voltage applied across the source region and drain region** of the silicon based semiconductor transistor device, **and a second bias voltage applied across the source region and gate** of the silicon based semiconductor transistor. (Emphasis added.)

Control over threshold voltage via "a first bias voltage applied across the source region and drain region ... and a second bias voltage applied across the source region and the gate" as recited in Claim 17, can provide a range of benefits. For example, "[a] net NDR effect [in the transistor device] can be controlled through two different bias parameters" (specification as originally filed at page 17, lines 9-10), which can in turn enable "the threshold voltage variability/reversibility [to] be tailored to be relatively symmetric." (Specification as originally filed, page 17, lines 15-16.) Also, "since hot carriers are generated at a faster rate as the drain to source voltage increases ... [t]he relative percentage of hot carriers in the channel current ... can be controlled. (Specification as originally filed, page 17, lines 22-27.)

Thompson, on the other hand, merely describes a system in which, "[f]or example, the threshold voltage (V_T) for the CMOS, CML, SOS, SOI, BICMOS, PMOS, and/or NMOS devices of the circuit may be at a lower value by **providing a back gate bias voltage.**"

(Thompson, page 4, paragraph 43.) (Emphasis added.) As is known in the art, a "back gate voltage" is a voltage applied to the well in which a device is formed. "[A] back gate voltage may be provided by, for example, a fixed voltage source ... connected to the back gate well via a contact." (Thompson, page 5, paragraph 44.) Thompson does not teach or suggest "a threshold voltage ... adjusted using ... a second bias voltage applied across the source region and the gate of the silicon based semiconductor transistor" as recited in Claim 17.

Even assuming, arguendo, that the "back gate bias voltage" of Thompson can be considered to be a "bias voltage applied across the source region and the gate", Thompson still does not teach or suggest a "bias voltage applied across the source region and the drain region of the silicon based semiconductor transistor" as recited by Claim 17. Thompson only describes a single bias voltage for adjusting threshold voltages, and therefore does not teach or suggest a "threshold voltage ... adjusted using **a first bias voltage** applied across the source region and drain region ... **and a second bias voltage** applied across the source region and gate" (emphasis added) as recited by Claim 17.

For at least these reasons, Claim 17 is allowable over Thompson under 35 U.S.C. 102(e). Claims 18-20 depend from Claim 17, and are therefore allowable over Thompson for at least the same reasons that Claim 17 is allowable. Accordingly, reconsideration and allowance of Claims 17-20 is respectfully requested.

Allowable Subject Matter

Applicant notes with appreciation the allowance of Claims 8-13. Applicant also notes with appreciation the recognition of allowable subject matter in Claims 3, 16, and 18. As described above, Claim 1 is amended to incorporate the limitations of Claim 3, and Claim 14 is amended to incorporate the limitations of Claim 16. However, as Applicant submits that Claim 17 is allowable in view of the above remarks, Claim 18 (which depends from Claim 17) is not amended in the present paper.